



Future Energy Park Inc.

**Future Energy Park Power Plant, Industrial System Designation
and Interconnection**

July 12, 2023

Alberta Utilities Commission

Decision 28154-D01-2023

Future Energy Park Inc.

Future Energy Park Power Plant, Industrial System Designation and Interconnection

Proceeding 28154

Applications 28154-A001 to 28154-A003

July 12, 2023

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1 Decision summary

1. In this decision, the Alberta Utilities Commission approves applications from Future Energy Park Inc. (FEP Inc.) to construct and operate a 30-megawatt (MW) cogeneration power plant, to connect the power plant to the ENMAX Power Corporation distribution network, and for the electric facilities to be designated as an industrial system.

2 Introduction

2. On April 17, 2023, FEP Inc. filed applications 28154-A001 to 28154-A003 for approval to construct and operate a 30-MW natural gas-fired cogeneration power plant at its proposed Future Energy Park biofuels facility and to connect the power plant to ENMAX's electric distribution system (the project).

3. FEP Inc. also applied for an industrial system designation for the electric facilities at the biofuels facility.

4. The project would be sited on privately owned, cultivated lands within an existing industrial area in the southeast quarter of Section 1, Township 24, Range 29, west of the Fourth Meridian, along the eastern edge of the city of Calgary, and adjacent to Rocky View County. The power plant footprint would occupy approximately 0.9 hectares within the biofuels facility's 20-hectare site.

5. FEP Inc. described the benefits of the biofuels facility as including short- and long-term employment opportunities, capital investment in the province, provincial tax revenues, increased income for agricultural operators, and meeting the shortfall of domestic ethanol production. FEP Inc. anticipated a project in-service date of March 31, 2025.

6. A map of the proposed project is shown below in Figure 1.

Figure 1. Map of the proposed power plant and industrial system



7. FEP Inc.'s applications contained the following key components:
- A participant involvement program summary, which detailed notification and consultation with stakeholders.¹ FEP Inc. explained that no Indigenous consultation was undertaken for the project because it is sited on privately owned land, and the Aboriginal Consultation Office confirmed that consultation was not required.
 - An environmental evaluation, which assessed the pre-construction project site conditions, described field survey methodologies, discussed potential environmental impacts from the project to valued ecosystem components in the project area, and characterized the significance of any residual impacts.²
 - An environmental protection plan, which provides details on mitigation methods and the conservation of valued ecosystem components to reduce impacts from construction, operation, and reclamation of the proposed power plant.³
 - A noise impact assessment, which included a request for a Class A2 adjusted permissible sound level limit, that concluded that FEP Inc.'s facilities would comply with Rule 012: *Noise Control*.
 - A component map, single-line diagram, and process-flow block diagram for the biofuels facility.
 - A *Historical Resources Act* approval dated February 16, 2022.⁴
 - An air quality assessment, which concluded that the emissions generated from the power plant are less than the prescribed amounts detailed in the current *Alberta Ambient Air Quality Objectives and Guidelines*.
8. The Commission issued a notice of applications in accordance with Section 7 of Rule 001: *Rules of Practice*. No submissions were received in response to the notice.

3 Discussion and findings

3.1 Cogeneration power plant

9. For the reasons outlined below, the Commission finds that approval of the power plant is in the public interest having regard to the social, economic, and other effects of the power plant, including its effect on the environment.

10. The Commission has reviewed the application and is satisfied that the information requirements specified in Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines* have been met.

¹ Exhibit 28154-X0007, Future Energy Park, Attachment I – Participant Involvement Program.

² Exhibit 28154-X0016, Attachment E - Environmental Evaluation.

³ Exhibit 28154-X0017, Attachment F - Environmental Protection Plan.

⁴ Exhibit 28154-X0016, Attachment E - Environmental Evaluation, PDF page 67.

11. The Commission finds that FEP Inc.'s participant involvement program satisfies the requirements of Rule 007. FEP Inc. consulted with stakeholders within 800 metres of the project and notified stakeholders within 2,000 metres of the project. FEP Inc. stated that it was not aware of any outstanding concerns regarding the project.

12. The Commission finds that the noise impact assessment (NIA) submitted by FEP Inc. meets the requirements of Rule 012. The Commission accepts the conclusion that noise from the project would comply with the permissible sound levels (PSLs) established by Rule 012 with a Class A2 adjustment to the PSLs.

13. In the NIA, FEP Inc. indicated that the basic sound level (BSL) specified in Table 1 of Rule 012 cannot be directly applied in this case due to existing ambient noise, such as the presence of urban road noise and other non-energy related noise sources within the industrial area, in close proximity to the project. In other words, the standard PSLs using assumed ambient sound levels cannot be met by the proposed project without an adjustment to those PSLs. FEP Inc. requested a Class A2 adjustment of +10 dBA (A-weighted decibels) to increase the PSL at receptors R1, R2 and R3 to account for the higher existing ambient noise levels.

14. Rule 012 requires that a Class A2 adjustment be determined based on the representative ambient sound levels (ASL). To accurately determine the Class A2 adjustment, the representative ASL must be measured without any noise contribution from energy-related facilities. Given that the project is in an urban/light-industrial setting and there are only non-energy related noise sources, ASL measurements were conducted in accordance with Rule 012 to ascertain the representative ambient sound environment at the receptor locations.

15. ASL measurements were conducted over a 24-hour period at receptors R1 and R2 on June 27 and 28, 2022, respectively. Due to the close proximity of Receptor R3 to Receptor R2 and its distance from 84th Street, Receptor R3 was considered to have a similar acoustic environment to Receptor R2.

16. Based on Rule 012, a Class A2 adjustment can be determined by calculating the difference between the BSL and the measured ASL, and utilizing the graph in Figure 1 of Section 2.1 of Rule 012. Based on the noise data provided in the NIA,⁵ a +10 dBA Class A2 nighttime adjustment is applicable for all identified receptors. However, the daytime Class A2 adjustment would be +9 dBA for Receptor R1 and +10 dBA for receptors R2 and R3. The resulting PSL can then be calculated by adding the Class A2 adjustment to the BSL. The values for these calculations are summarized in Table 1 below.

Table 1. Determination of A2 adjusted permissible sound levels

Receptor	Table 1 BSL (dBA)	Measured ASL	BSL minus Measured ASL	Class A2 Ambient Monitoring Adjustment (per Figure 1 of Rule 012)	Resultant PSL (dBA)
R1	60 daytime 50 nighttime	63.9 daytime 59.6 nighttime	-4 daytime -9 nighttime	+9 daytime +10 nighttime	69 daytime 60 nighttime
R2	55 daytime 45 nighttime	60.3 daytime 57.0 nighttime	-5 daytime -12 nighttime	+10 daytime +10 nighttime	65 daytime 55 nighttime
R3	55 daytime 45 nighttime	60.3 daytime 57.0 nighttime	-5 daytime -12 nighttime	+10 daytime +10 nighttime	65 daytime 55 nighttime

⁵ Exhibit 28154-X0018, Attachment G – Noise Impact Assessment, PDF page 10.

17. According to Rule 012, a Class A2 adjustment request requires an applicant to present a resultant table that compares PSLs with and without the Class A2 adjustment. The Class A2-adjusted versus non-adjusted PSLs, and cumulative sound pressure levels (SPLs) for the daytime and nighttime periods were provided by FEP Inc. in its response to the Commission's information request,⁶ and is summarized in Table 2 as follows.

Table 2. Resultant table with and without the Class A2 adjustment

Receptor		Measured ASL (dBA)	With Class A2 adjusted PSL (dBA)	Without Class A2 adjusted PSL (dBA)	Cumulative SPL (dBA)	PSL is met without Class A2 adjustment? (yes/no)	PSL is met with Class A2 adjustment? (yes/no)
R1	Day time	63.9	69	60	63.9	No	Yes
	Night-time	59.6	60	50	59.6	No	Yes
R2	Day time	60.3	65	55	60.8	No	Yes
	Night-time	57.0	55	45	58.0	No	No
R3	Day time	60.3	65	55	60.7	No	Yes
	Night-time	57.0	55	45	57.9	No	No

18. The Commission is satisfied that the assumed ASLs found in Table 1 of Rule 012 are not representative of the soundscape at the receptors and that a Class A2 adjustment is appropriate. The Commission finds that FEP Inc. correctly applied procedures from Rule 012 when establishing a Class A2 adjustment based on the measured ASL. However, the Commission has still identified non-compliance at receptors R2 and R3 during the nighttime period. This is because the adjusted nighttime PSL, with a +10 dBA Class A2 adjustment for receptors R2 and R3, are not high enough to achieve compliance. Following completion of the project, the cumulative nighttime PSLs are predicted to be 58 dBA and 57.9 dBA for receptors R2 and R3 respectively; however, this exceeds the Class A2 adjusted PSL limit of 55 dBA for both receptors, R2 and R3.

19. The Commission acknowledges that the current Rule 012 does not prescribe a Class A2 adjustment of more than +10 dBA when utilizing the flattened graphical configuration in Figure 1 of Section 2.1. This limitation poses challenges in accurately addressing the actual soundscape for this project. Notably, both receptors R2 and R3 currently exhibit a nighttime ASL of 57 dBA which exceeds the projected Class A2 adjusted PSL limit of 55 dBA. Consequently, it is impossible for FEP Inc. to meet the Class A2 adjusted PSL limit utilizing Figure 1 of Section 2.1 as it currently exists in Rule 012.

20. Considering the complex soundscape scenario, in conjunction with confirmation received from FEP Inc. through an information request that the residents did not object to a Class A2 adjustment, the Commission exercises its discretion in accordance with Rule 012, Section 1.4(1), to allow an additional adjustment of +3 dBA to the nighttime PSL resulting in a combined final Class A2 adjusted PSL of 58 dBA for the nighttime period at R2 and R3. The Commission finds

⁶ Exhibit 28154-X0037, AUC-2023 May17-001 FEP-IR responses, PDF page 127.

that both receptors R2 and R3, with a predicted nighttime cumulative PSL of 58 dBA and 57.9 dBA, respectively, would comply with the final PSL of 58 dBA. This finding is based on the Commission's authority to assess the permissible sound level on a site-specific basis. The Commission's acceptance of the project compliance signifies that it meets the criteria outlined in Rule 012, taking into account the specific characteristics and soundscape scenario of the project.

21. The Commission concludes that a Class A2 adjusted nighttime PSL of 60 dBA for Receptor R1 and 58 dBA for receptors R2 and R3 is reasonable in these extenuating circumstances.

22. The Commission notes that the air quality assessment submitted by FEP Inc. concludes that the cumulative maximum CO, NO₂ and PM_{2.5}⁷ emissions from the project are expected to be below the *Alberta Ambient Air Quality Objectives and Guidelines* limits. The Commission is satisfied that the analysis, conducted by Triton Environmental Consultants Ltd., demonstrates that the project will comply with the *Alberta Ambient Air Quality Objectives and Guidelines*.

23. The Commission has reviewed the environmental evaluation and considers that FEP Inc.'s power plant application addresses the environmental information requirements of Rule 007. The Commission accepts the findings of the environmental evaluation that the residual environmental effects arising from the construction and operation of the cogeneration power plant are predicted to be insignificant and that potential adverse environmental effects are expected to be mitigated effectively with appropriate environmental protection measures identified within the environmental protection plan developed for the power plant. The power plant will be located on previously disturbed land and within an industrial area. Further, the power plant is part of a larger industrial facility. The Commission is satisfied that the residual environmental effects of the project will not be significant and any potential adverse effects on the environment can be effectively mitigated in accordance with FEP Inc.'s environmental protection plan.

24. Based on the foregoing, the Commission considers the project to be in the public interest in accordance with Section 17 of the *Alberta Utilities Commission Act*.

3.2 Interconnection to the ENMAX Power Corporation distribution system

25. FEP Inc. provided a letter from ENMAX confirming that FEP Inc. had applied to connect its proposed power plant to ENMAX's distribution system in the southwest quarter of Section 1, Township 24, Range 29, west of the Fourth Meridian. In responses to information requests,⁸ FEP Inc. stated that ENMAX has not yet issued a final approval for the interconnection application; however, it anticipates entering into an interconnection agreement with ENMAX at the end of July 2023.

26. The Commission approves the interconnection application but finds that FEP Inc. has not provided sufficient documentation that confirms ENMAX has agreed to connect its proposed power plant. Consequently, the Commission imposes the following as a condition of approval:

- a. FEP Inc. must provide to the Commission, confirmation from ENMAX Power Corporation indicating its agreement to connect the cogeneration power plant to the ENMAX distribution system within seven days of receipt of ENMAX's confirmation.

⁷ Carbon monoxide (CO), nitrogen dioxide (NO₂) and fine particulate matter (PM_{2.5}).

⁸ Exhibit 28154-X0037, AUC-2023 May17-001 FEP-IR responses, PDF page 131.

3.3 Industrial system designation

27. The Commission must consider FEP Inc.'s industrial system designation (ISD) application in accordance with the principles and criteria set out in Section 4 of the *Hydro and Electric Energy Act*. Section 4(2) sets out a number of principles that the Commission must have regard for when considering an application for an ISD; Section 4(3) sets out specific criteria for determining whether a project should be designated as an industrial system; and sections 4(4) and 4(5) set out further criteria for the Commission to consider when a project does not meet the criteria set out in Section 4(3).⁹

28. FEP Inc. stated that as a highly integrated component of the overall biofuels facility, the cogeneration power plant would supply the facility with the required power, steam, and hot water for the facility's processes to be operational. FEP Inc.'s power plant will generate up to 30 MW of power for use by its industrial operations at the biofuels facility and export up to 4 MW of excess electricity to the Alberta Interconnected Electric System (AIES). FEP Inc. also stated that a 3-MW power purchase contract with ENMAX will be executed as a contingency for the biofuels facility, in the event that electricity is not available from the power plant.

29. The cogeneration power plant for the proposed biofuels facility will consist of the following:

- two 15-MW natural gas-fired turbine generators
- two once-through steam generators
- one 4-MW diesel-fired emergency generator
- one 1,000-kilowatt (kW) natural gas-fired startup generator
- one 25-kilovolt (kV) main power transformer

30. For the reasons outlined below, the Commission finds that granting an ISD is consistent with the principles and criteria set out in Section 4 of the *Hydro and Electric Energy Act*.

31. FEP Inc. provided an economic assessment which compared two viable options for the construction and operation of the proposed power plant. FEP Inc. compared the cost of providing steam and electricity to the facilities' operations via the cogeneration power plant, to the cost of importing electricity from the AIES and generating steam on-site using gas-fired boilers. The economic comparison concluded that over a 20-year period, the cogeneration power plant would result in a savings of approximately \$204 million. These projected savings include revenue received as a result of exporting electricity to the AIES. Accordingly, the Commission finds the designation to be consistent with the principle set out in Section 4(2)(a) of the *Hydro and Electric Energy Act*.

32. The Commission is satisfied that FEP Inc.'s proposal is consistent with Section 4(2)(b) of the *Hydro and Electric Energy Act*. As outlined above, FEP Inc.'s proposal supports the development of an economical supply of electricity for FEP Inc. to meet the requirements of its integrated industrial processes. Further, the Commission understands that FEP Inc. is seeking an ISD to connect to the AIES with the intent to export electricity produced by the power plant in

⁹ Sections 4(2) to 4(5) of the *Hydro and Electric Energy Act* have been attached as Appendix B.

excess of the biofuels facility's electricity load. Importantly, the power plant produces both electricity and steam that will be used for the industrial operations at the biofuels facility and all of the produced steam would be used for the biofuels facility operations. The export of excess electricity will facilitate the efficient exchange with the AIES of electric energy that is in excess of FEP Inc.'s own electricity requirements, but which must be generated to meet the heating requirements of the facility.

33. Regarding sections 4(2)(c)(i) and (ii) of the *Hydro and Electric Energy Act*, the Commission is satisfied that FEP Inc. is not seeking an ISD to avoid system costs and that a designation would not facilitate an uneconomical bypass of the AIES. FEP Inc. explained that having on-site generation would result in more efficient and cost-effective production of electricity, than purchasing electricity from the AIES. The Commission accepts that the decision to install generation at the facility was made to increase the biofuels facility efficiency rather than to avoid system costs.

34. The Commission is satisfied that Section 4(3)(a) of the *Hydro and Electric Energy Act* has been met. The electric facilities include two generating units located onsite at the biofuels facility. FEP Inc. also stated that the 4-MW diesel-fired generator would be used as backup in emergency situations and the 1000kW natural gas-fired generator would be used during plant startup. The power plant will also produce steam and hot water that will be used by the bioethanol plant and biogas plant. Accordingly, the Commission considers that there is a high degree of integration between the industrial operations and the cogeneration power plant.

35. The Commission is satisfied that Section 4(3)(b) of the *Hydro and Electric Energy Act* has been met as the facility produces bioethanol and renewable natural gas. It is also satisfied that Section 4(3)(c) of the *Hydro and Electric Energy Act* has been met as FEP Inc. is the sole owner of the components of the industrial operations.

36. The Commission observes that it would be impractical to precisely scale on-site generation for a specific steam, hot water and/or electrical output given the need for operational variability and having regard for reasonable expansion or growth of the industrial operations. Further, the Commission understands that the electric energy generated in excess of FEP Inc.'s own requirements would flow to the AIES. As such, the Commission considers that the power plant is reasonably scaled to meet the steam, hot water, and electricity needs of the biofuels facility and that the requirements of Section 4(3)(d) of the *Hydro and Electric Energy Act* are met.

37. The Commission finds that Section 4(3)(e) of the *Hydro and Electric Energy Act* has been met as FEP Inc. owns and operates the biofuels facility and all its subsidiary industrial processes including the on-site electric facilities. Hence, there is a high degree of integration of management of both the components and the processes of the industrial operations.

38. The Commission accepts that the total capital cost of the power plant is approximately \$40 million, representing a significant investment in the cogeneration system and equipment. Therefore, the requirements of Section 4(3)(f) of the *Hydro and Electric Energy Act* have been satisfied.

39. In assessing the requirements of Section 4(3)(g) of the *Hydro and Electric Energy Act*, the Commission finds that this requirement is not applicable to the project because the industrial operations do not extend beyond contiguous property.

40. Having considered all of the principles and criteria set out in Section 4 of the *Hydro and Electric Energy Act*, the Commission finds that FEP Inc.'s application meets all the principles and criteria for designation.

41. The Commission also finds that the ISD application information requirements and participant involvement program requirements specified in Rule 007 have been met.

4 Decision

42. Under sections 11 and 19 of the *Hydro and Electric Energy Act*, the Commission approves Application 28154-A003 and grants Future Energy Park Inc. the approval set out in Appendix 1 – Power Plant Approval 28154-D02-2023, to construct and operate the Future Energy Park Power Plant.

43. Under Section 4 of the *Hydro and Electric Energy Act* and sections 2(1)(d) and 117 of the *Electric Utilities Act*, the Commission approves Application 28154-A001 and grants to Future Energy Park Inc. the order set out in Appendix 2 – Industrial System Designation Order 28154-D03-2023 to designate the electric system within the biofuels facility as an industrial system.

44. Under Section 18 of the *Hydro and Electric Energy Act*, the Commission approves Application 28154-A002 for the connection of the cogeneration power plant to the ENMAX Power Corporation distribution system. The Commission will grant a connection order, as Appendix 3 – Connection Order 28154-D04-2023, upon receipt of confirmation that an agreement to connect the cogeneration power plant to the ENMAX Power Corporation distribution system has been reached.

45. The appendixes will be distributed separately.

Dated on July 12, 2023.

Alberta Utilities Commission

(original signed by)

Michael Arthur
Commission Member

Appendix A – Summary of Commission conditions of approval

This section is intended to provide a summary of all conditions of approval specified in the decision for the convenience of readers. Conditions that require subsequent filings with the Commission will be tracked as directions in the AUC's eFiling System. In the event of any difference between the directions and conditions in this section and those in the main body of the decision, the wording in the main body of the decision shall prevail.

The following is a condition of Decision 28154-D01-2023 that requires a subsequent filing with the Commission:

- a. FEP Inc. must provide to the Commission, confirmation from ENMAX Power Corporation indicating its agreement to connect the cogeneration power plant to the ENMAX distribution system within seven days of receipt of ENMAX's confirmation.

Appendix B – Sections 4(2) to 4(5) of the Hydro and Electric Energy Act

(2) Where the Commission is considering an application for designation as an industrial system, the Commission shall have regard to the following principles:

- (a) the designation must be consistent with the objective of giving appropriate economic signals so that integrated industrial processes can develop their own internal supply of electricity where that is the most economical source of generation;
- (b) the designation must support
 - (i) the development of the economical supply of generation to meet the requirements of integrated industrial processes,
 - (ii) the efficient exchange, with the interconnected electric system, of electric energy that is in excess of the industrial system's own requirements, and
 - (iii) the making of decisions respecting the location of generation and consumption facilities so that the efficiency of the interconnected electric system is improved, including improved voltage stability and reduction of losses and congestion on transmission lines;
- (c) the designation must not facilitate
 - (i) the development of independent electric systems that attempt to avoid costs associated with the interconnected electric system, and
 - (ii) uneconomical by-pass of the interconnected electric system;
- (d) duplication of the interconnected electric system must be avoided where it is more economical to use the transmission facilities or electric distribution systems owned by persons in whose service area the industrial system is or will be located.

(3) The Commission may make a designation under subsection (1) if the Commission is satisfied that all of the following criteria have been met:

- (a) the electric system includes a generating unit located on the property of the one or more industrial operations it is intended to serve, there is a high degree of integration of the electric system with one or more industrial operations the electric system forms part of and serves, and there is a high degree of integration of the components of the industrial operations;
- (b) the industrial operations process a feedstock, produce a primary product or manufacture a product;
- (c) there is a common ownership of all of the components of the industrial operations;
- (d) the whole of the output of each component within the industrial operation is used by that operation and is necessary to constitute its final products;

- (e) there is a high degree of integration of the management of the components and processes of the industrial operations;
 - (f) the application to the Commission for a designation under subsection (1) demonstrates significant investment in both the expansion or extension of the industrial operations processes and the development of the electricity supply;
 - (g) where an industrial operation extends beyond contiguous property, the owner of the industrial operation satisfies the Commission that the overall cost of providing the owner's own distribution or transmission facilities to interconnect the integral parts of the industrial operation is equal to or less than the tariffs applicable for distribution or transmission in the service area where the industrial operation is located.
- (4)** Where the Commission is not satisfied that subsection (3)(c) or (d) has been met, the Commission may make a designation under subsection (1) if the Commission is satisfied that all of the separately owned components and all of the industrial operations are components of an integrated industrial process.
- (5)** Where the Commission is not satisfied that all of clauses (a) to (g) of subsection (3) have been met, the Commission may make a designation under subsection (1) if the Commission is satisfied that
- (a) all of clauses (a) to (g) of subsection (3) and subsection (4) have been substantially met, and
 - (b) there is a significant and sustained increase in efficiency in a process of the industrial operation or in the production and consumption of electric energy by the industrial operation as a result of the integration of the electric system with the industrial operations the electric system forms part of and serves.